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Project Overview

Problem: Modern organizations store workloads across many different cloud platforms, regions, and services due to the advantages of each unique service. Keeping track of the workload across all platforms can be complex and hard to transfer information in-between.

Solution: Tornjak aims to be a solution to this problem by being a centralized, secure, and user-friendly management interface to manage all the cloud services. Tornjak uses the security [SPIFFE](#)/[SPIRE](#) architecture to provide a “zero trust security architecture.”

Goals and Milestones 1

- Learn background material: spire/spiffe, tornjak, kubernetes
- Install/learn pre-req technologies: docker, minikube, golang, javascript
- Run quickstart: tutorial for running tornjak
- Building/pushing images: practice saving changes to code

Goals and Milestones 2

- Choose an issue: API
- Open pull request: Upgrade API nodes to v1, convert verbs to methods
- Review pull request: pass checks to integrate into main branch, make any needed fixes



Highlights and Accomplishments Sub-Project 1

Run Quick Start

Deploy Tornjak
Images

Tag and Push
Images

Delete and Get
new Pod

Port forward
command

Fork repo &
create branch

Commit with
sign-off

Complete first
PR



Highlights and Accomplishments Sub-Project 2

```
apiRtr.HandleFunc("/api/agent/list", s.agentList)
apiRtr.HandleFunc("/api/agent/ban", s.agentBan)
apiRtr.HandleFunc("/api/agent/delete", s.agentDelete)
apiRtr.HandleFunc("/api/agent/createjointoken", s.agentCreateJoinToken)
```

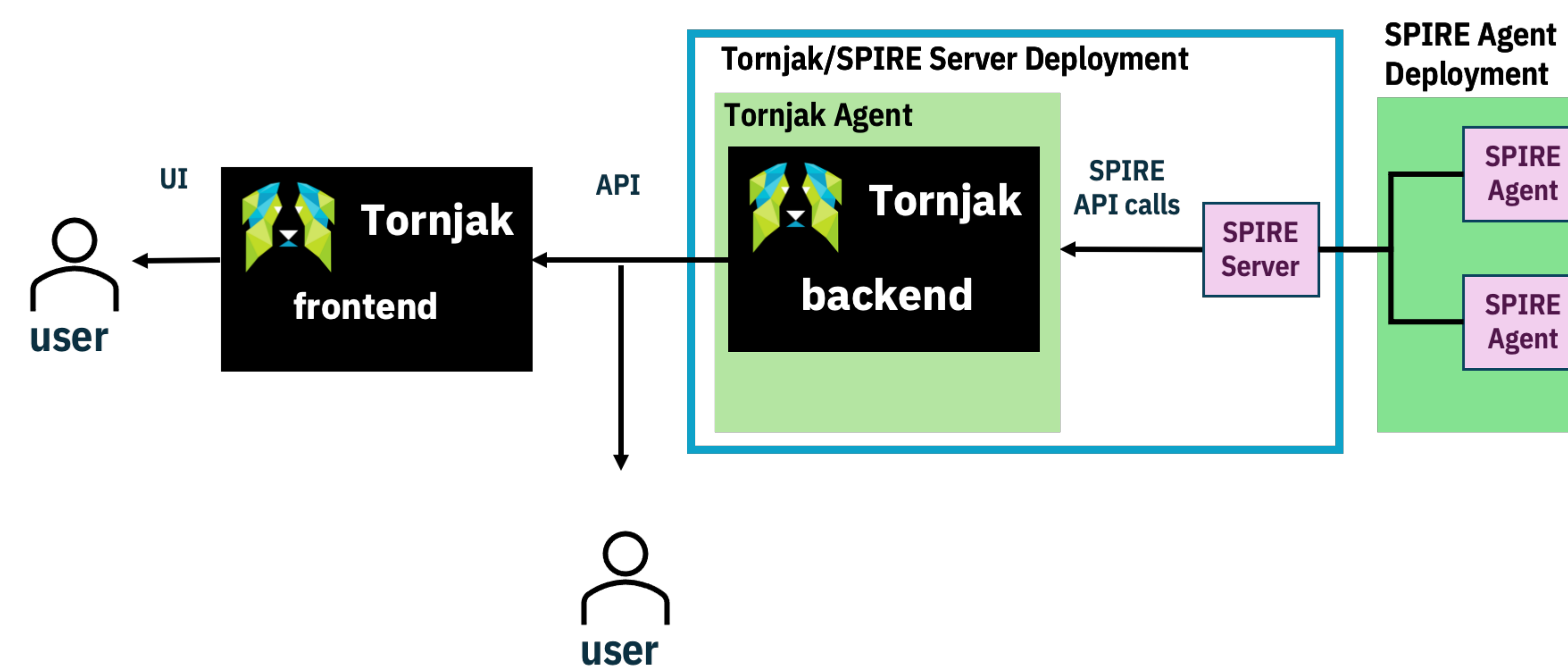
```
apiRtr.HandleFunc("/api/v1/spire/agents", s.agentList).Methods("GET")
apiRtr.HandleFunc("/api/v1/spire/agents/ban", s.agentBan).Methods("POST")
apiRtr.HandleFunc("/api/v1/spire/agents", s.agentDelete).Methods("DELETE")
apiRtr.HandleFunc("/api/v1/spire/agents/jointoken", s.agentCreateJoinToken).Methods("POST")
```

Change API paths

- Plurality
- Versioning
- HTTP methods

Check results in postman
Pull request

```
1 {
2   "agents": [
3     {
4       "id": {
5         "trust_domain": "example.org",
6         "path": "/spire/agent/k8s_sat/demo-cluster/8b90aea6-8866-4648-ac95-d59ac54fbacd"
7       },
8       "attestation_type": "k8s_sat",
9       "x509serial_number": "242501020409502561462598604157724565688",
10      "x509serial_expires_at": 1722245843,
11      "selectors": [
12        {
13          "type": "k8s_sat",
14          "value": "agent_ns:spire"
15        },
16        {
17          "type": "k8s_sat",
18          "value": "agent_sa:spire-agent"
19        },
20        {
21          "type": "k8s_sat",
22          "value": "cluster:demo-cluster"
23        }
24      ]
25    }
26  ]
27 }
```



Open Source Outcomes

- Learn about open source: working as a community, how to contribute, bring up problems
- Surprising: amount of resources: tutorials/people, easy to contribute
- Contributions: Api changes, issues specific to windows

Future Work

- Tornjak 1.7 to 2.0
- Authorization policy
- API documentation
- Frontend Migration to New API (UI browser app)
- Manager Migration to New API (convert to new API)